

## CLAIMS LISTING

1. (Cancelled)

2. (Cancelled)

3. (Cancelled)

4. (Cancelled)

5. (Cancelled)

6. (Cancelled)

7. (Currently Amended) A computer implemented method of analyzing gene expressions, comprising an act of causing a computer having a processor to perform acts of:

determining, with the processor, a first gene expression pattern for a first condition, wherein the first gene expression pattern comprises a gene expression;

forming a first spatial-expression pattern by:

selecting a chromosomal region having an exon;

determining a start and a stop position for each exon; and

associating the gene expression within the first gene expression pattern with its corresponding exon;

wherein the act of forming the first spatial-expression pattern further comprises an act of creating a first spatial-expression pattern signal wherein the first spatial-expression pattern signal is a representation of the first spatial-expression pattern where a magnitude of the first spatial-expression pattern signal at any point is determined by an expression level of the corresponding exon;  
identifying first regular spatial patterns in the first spatial-expression pattern signal; and

~~The method of claim 4~~, wherein

the act of identifying first regular spatial patterns in the first spatial-expression pattern signal is performed through the use of Wavelet transform signal processing; and providing an output to a user.

8. (Original) The method of claim 7, further comprising an act of:

identifying a group of genes contributing to local maximum points of the generated Wavelet transformed signal at different scales and positions.

9. (Cancelled)

10. (Cancelled)

11. (Cancelled)

12. (Cancelled)

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16. (Cancelled)

17. (Cancelled)

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19. (Cancelled)

20. (Cancelled)

21. (Cancelled)

22. (Cancelled)

23. (Cancelled)

24. (Cancelled)

25. (Cancelled)

26. (Currently Amended) An apparatus for analyzing gene expressions, the apparatus comprising a computer system including a processor, a memory coupled with the processor, an input coupled with the processor for receiving input data, and an output coupled with the processor for outputting data, wherein the computer system further comprises means, residing in its processor and memory, for:

determining a first gene expression pattern for a first condition, wherein the first gene expression pattern comprises a gene expression;

forming a first spatial-expression pattern by:

selecting a chromosomal region having an exon;

determining a start and a stop position for each exon; and

associating the gene expression within the first gene expression pattern with its corresponding exon;

wherein the means for forming the first spatial-expression pattern further comprises means for creating a first spatial-expression pattern signal wherein the first spatial-expression pattern signal is a representation of the first spatial-expression pattern where a magnitude of the first spatial-expression pattern signal at any point is determined by an expression level of the corresponding exon;  
identifying first regular spatial patterns in the first spatial-expression pattern

signal;

~~An apparatus as set forth in claim 23, wherein~~

the means for identifying first regular spatial patterns in the first spatial-expression pattern signal is performed through the use of Wavelet transform signal processing; and  
providing an output to a user.

27. (Original) An apparatus as set forth in claim 26, further comprising an means for:  
identifying a group of genes contributing to local maximum points of the  
generated Wavelet transformed signal at different scales and positions.

28. (Cancelled)

29. (Cancelled)

30. (Cancelled)

31. (Cancelled)

32. (Cancelled)

33. (Cancelled)

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36. (Cancelled)

37. (Cancelled)

38. (Cancelled)

39. (Cancelled)

40. (Cancelled)

41. (Cancelled)

42. (Cancelled)

43. (Cancelled)

44. (Cancelled)

45. (Currently Amended) A computer program product for analyzing gene expressions, the computer program product comprising means, encoded in a computer-readable medium for:

determining a first gene expression pattern for a first condition, wherein the first gene expression pattern comprises a gene expression;

forming a first spatial-expression pattern by:

selecting a chromosomal region having an exon;

determining a start and a stop position for each exon; and

associating the gene expression within the first gene expression pattern with its corresponding exon;

wherein the means for forming the first spatial-expression pattern further comprises means for creating a first spatial-expression pattern signal wherein the first spatial-expression pattern signal is a representation of the first spatial-expression pattern where a magnitude of the first spatial-expression pattern signal at any point is determined by an expression level of the corresponding exon;

identifying first regular spatial patterns in the first spatial-expression pattern signal;

~~A computer program product as set forth in claim 42, wherein~~

the means for identifying first regular spatial patterns in the first spatial-expression pattern signal is performed through the use of Wavelet transform signal processing; and

providing an output to a user.

46. (Original) A computer program product as set forth in claim 45, further comprising an means for:

identifying a group of genes contributing to local maximum points of the generated Wavelet transformed signal at different scales and positions.

47. (Cancelled)

48. (Cancelled)

49. (Cancelled)

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52. (Cancelled)

53. (Cancelled)

54. (Cancelled)

55. (Cancelled)

56. (Cancelled)

57. (Cancelled)

58. (Cancelled)

59. (Cancelled)

60. (Cancelled)

61. (Currently Amended) A computer implemented method of analyzing gene expressions comprising an act of causing a computer having a processor to perform acts of:

determining, with the processor, a first gene expression pattern for a first condition, wherein the first gene expression pattern comprises a gene expression:

forming a first spatial-expression pattern by:

selecting a chromosomal region having an exon;

determining a start and a stop position for each exon;

associating the gene expression within the first gene expression pattern with its corresponding exon; and

creating a first spatial-expression pattern signal wherein the first spatial-expression pattern signal is a representation of the first spatial-expression pattern where a magnitude of the first spatial-expression pattern signal at any point is determined by an expression level of the corresponding exon;

identifying first regular spatial patterns in the first spatial-expression pattern signal;

~~The method of claim 59,~~ wherein

the act of identifying first regular spatial patterns in the first spatial-expression pattern signal is performed through the use of Wavelet transform signal processing;

and

providing an output to a user.

62. (Cancelled)

63. (Cancelled)

64. (Cancelled)

65. (Cancelled)

66. (Cancelled)

67. (Cancelled)

68. (Cancelled)

69. (Currently Amended) An apparatus for analyzing gene expressions, the apparatus comprising a computer system including a processor, a memory coupled with the processor, an input coupled with the processor for receiving input data, and an output coupled with the processor for outputting data, wherein the computer system further comprises means, residing in its processor and memory, for:

determining a first gene expression pattern for a first condition, wherein the first gene expression pattern comprises a gene expression;

forming a first spatial-expression pattern by:

selecting a chromosomal region having an exon;

determining a start and a stop position for each exon;

associating the gene expression within the first gene expression pattern with its corresponding exon; and

creating a first spatial-expression pattern signal wherein the first spatial-expression pattern signal is a representation of the first spatial-expression pattern where a magnitude of the first spatial-expression pattern signal at any point is determined by an expression level of the corresponding exon;

identifying first regular spatial patterns in the first spatial-expression pattern signal;

An apparatus as set forth in claim 67, wherein



the means for identifying first regular spatial patterns in the first spatial-expression pattern signal is performed through the use of Wavelet transform signal processing; and

providing an output to a user.

70. (Cancelled)

71. (Cancelled)

72. (Cancelled)

73. (Cancelled)

74. (Cancelled)

75. (Cancelled)

76. (Cancelled)

77. (Currently Amended) A computer program product for analyzing gene expressions, the computer program product comprising means, encoded in a computer-readable medium for:

determining a first gene expression pattern for a first condition, wherein the first gene expression pattern comprises a gene expression;

forming a first spatial-expression pattern by:

selecting a chromosomal region having an exon;

determining a start and a stop position for each exon;

associating the gene expression within the first gene expression pattern with its corresponding exon; and

creating a first spatial-expression pattern signal wherein the first spatial-expression pattern signal is a representation of the first spatial-expression pattern

where a magnitude of the first spatial-expression pattern signal at any point is determined by an expression level of the corresponding exon;

identifying first regular spatial patterns in the first spatial-expression pattern signal;

~~A computer program product as set forth in claim 75, wherein~~

the means for identifying first regular spatial patterns in the first spatial-expression pattern signal is performed through the use of Wavelet transform signal processing; and

providing an output to a user.

78. (Cancelled)

79. (Cancelled)

80. (Cancelled)

81. (Cancelled)